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Journal of the Society of Arts.

FRIDAY, DECEMBER 20, 1861.

DEATH OF HIS ROYAL HIGHNESS THE PRESIDENT.

It is with the deepest sorrow the Council record the death of His Royal Highness the Prince Consort, the President of this Society, which took place on Saturday the 14th instant, at Windsor Castle.

While the death of a Prince, distinguished by rare intellectual gifts and eminent virtues, is deeply lamented by the nation at large, his loss is more especially deplored by this Society, in whose proceedings he has ever taken a most active interest. Since his election as President, on the 2nd June, 1843, His Royal Highness has on all occasions been ready to aid the Society in its undertakings by the influence of his exalted rank and the sagacity of his vigorous mind, and under his guidance the Society has attained a position of usefulness, of which its past records, of a century's duration, afford no example.

The mighty movement of 1851, with its vast influence on the progress of human industry, was due to him, and although not personally engaged in the Exhibition of 1862, it is well known how deep an interest he took in its success. Without his judicious counsel and influential support it may truly be said that the Exhibition of 1862 would not have assumed a substantial form, and that Exhibition may be regarded as his last undertaking.

In the promotion of great objects the Prince was undismayed by novelty, and his judgment was tempered by a prudence which ensured success.

By his varied attainments, his refined tastes, his enlightened judgment, and his kindly sympathies, he became the honored link between the Crown and science, art, and literature, the ready means by which every judicious measure for the promotion of the commercial and industrial interests of the country was brought under the notice and patronage of the Queen.

His Royal Highness had endeared himself to all classes of Her Majesty's subjects, by the continued exercise of qualities of singular usefulness, and by the devotion of his life to the best interests of his adopted country. He has been taken away, not too soon, perhaps, for his own fame, but in the midst of a career distinguished by services to the nation, the full value of which it is impossible yet to estimate.

Monday next, the 23rd inst., being the day appointed for the funeral of his late Royal Highness, the Society's House will be entirely closed, and no business transacted.

INTERNATIONAL EXHIBITION OF 1862.

The Council beg to announce that the Guarantee Deed is now lying at the Society's House for signature, and they will be much obliged if those gentlemen who have given in their names as Guarantors, as well as others interested in the Exhibition, will make it convenient to call there and attach their signatures to the Document. Signatures for sums amounting in the aggregate to £441,750, have been attached to the Deed.

WEEKLY PROGRESS OF THE INTERNATIONAL EXHIBITION.

It will cause no surprise to any one to be told that even the progress and arrangement of the buildings at South Kensington have suffered an immense loss in the death of the President of this Society. It is not necessary to detail at the present moment the numerous instances in which his judgment and decision have beneficially influenced the construction of the building. Within a week of his lamented death he decided the important point of giving an additional access to the building through the conservatory of the Horticultural Society.

The loss which is felt so keenly by the whole nation must, necessarily—merely considered as a great national calamity—seriously affect the prospects of the Exhibition. Rumours have been rife as to the possibility of putting off the Exhibition to another year; although, perhaps, such an act might be considered a just tribute to the memory of His Royal Highness, it is felt that the carrying out of his wishes, and the realisation of his hopes, will more effectually express our appreciation of his worth, and the sense of our loss.

It is satisfactory to be able to report a very considerable progress in the building during the past week. Three of the ribs of the eastern dome are fixed on the western side, and a fourth, on the side facing the Exhibition-road, is fast rising. Besides these six other columns have had the lowest piece of the rib fastened to them. A portion below the line from which the ribs spring has been covered with boarding, so that the dome begins to assume a solid appearance, and to conceal the interior scaffolding. The great arch over the eastern entrance is being rapidly completed, and promises a remarkably fine effect. The western dome is comparatively still further advanced, the cross ribs which form the stays of the dome being fixed, and the preparations for raising the ribs nearly finished. The northern courts, though still in a backward condition, give signs of advancement. The glazing of the southern courts is completed, and the galleries around are in the course of being covered with felt, so that by the end of this week all this part of the building will be protected from the weather. The contractors have taken advantage of this to construct the necessary drains, and to commence the flooring.

The whole of the eastern picture galleries and towers can now be seen, and their noble proportions fully realised, as the plastering and coving are finished, and the scaffolding removed. Externally, too, the workmen are busy taking down the scaffolds, so that an early notice in the *Journal* will probably record the completion of the front facing the Cromwell-road. The smaller, or water-colour galleries, are in an equally advanced state. The principals of the roof over the great staircase are being fixed.

Her Majesty's Commissioners are to lose the services of their General Manager, Col. Shadwell, who has been ordered to join the army in Canada. His successor has not yet been appointed.

The preparations which are being made in France, to do justice to their own portion of the Exhibition, are said to be of an extended character. By an admirable system of filtering the applications for space, through the hands of persons practically acquainted with industrial details, first in the provinces and then in Paris, they have succeeded in producing a magnificent selection of French industry. Moreover, in order to set off to advantage their Exhibition, they have determined to spare no expense in decoration. Every portion of space occupied by France, whether in the Picture Galleries or in the Industrial Sections, is to be carpeted. Mirrors and girandoles will be hung in every available position, and the great court which has been assigned to them in the south-western part of the building, will be hung with curtains stretched from column to column, shutting off this portion from the rest of the building, and, in effect, rendering it a distinct Exhibition.

EXAMINATIONS 1862.—NOTICE TO INSTITUTIONS AND LOCAL BOARDS.

The attention of Secretaries of Institutions and Local Educational Boards, is specially called to Par. 5 of the Programme of Examinations for 1862, as follows :—

5. A detailed list of the Chairman, Secretary, and other Members of each Local Board, giving not only their names but their addresses and designations, should be submitted to the Council of the Society of Arts before the 1st of January, 1862. In some cases the Local Educational Boards comprise such large districts that, for the convenience of the Candidates, Branch Local Boards have to be formed within the Districts. Wherever this is the case, the names and addresses of the members, both of the District Board and of its Branch Boards, must be forwarded to the Secretary of the Society of Arts. All changes in the composition of the various Boards now in existence, or to be formed hereafter, should be immediately notified to the Society of Arts.

THE BRITISH COLONIES AND THE INTERNATIONAL EXHIBITION.

By P. L. Simmonds.

No. XI.—The North American Colonies.

So much has been done by the various North American Colonies since the notice of their movements and intentions, published in August last, Vol. 9, p. 663, that I am induced to return to that group of colonies to supply the new details since to hand.

Canada.

Canada was all behindhand at that period, but the colony has so far advanced in its collection that even the war preparations making are not likely to retard or obstruct the transmission of its contributions.

The Legislature having refused to vote any grant for the purpose of the International Exhibition, owing to the poverty of the Treasury, in September, various public bodies in both sections of the province, recalled the attention of the Executive to the beneficial effects resulting from the position held by Canada at the London Exhibition in 1851, and at that of Paris in 1855 ; dwelling upon the knowledge of the Provincial resources thus diffused over Europe, and upon the tendency which the circumstances had to facilitate subsequent investments of British capital in Canadian securities and enterprises. The argument, carried forward, is strong. If Canada benefited by the displays of 1851 and 1855, when comparatively unknown, and with undeveloped wealth but imperfectly represented, how much greater gain may not be expected to follow an adequate exhibit now ? The last few years have brought to light treasures both in Upper and Lower Canada, of which neither had previously the slightest conception ; and the memorials to the Governor-General have dwelt upon the duty of bringing her varied means under the notice of the capitalists and traders of the world.

It is, undoubtedly, of the highest importance that the Province should occupy a prominent position in a display to which all other colonies and all nations, great and small, will contribute liberally. On the other hand, it were better for Canada not to appear in the race than to appear minus her laurels. Her former efforts astonished by their unexpectedness quite as much as by their force. Few persons abroad gave Canada credit for aught beyond dense forests and a hyperborean climate; and they were amazed to find her sustaining pretensions which indicated a fine climate, a fertile soil, wealth in mine and forest, and a people who add to energetic industry a full average excellence in the mechanical arts. Things are changed now. For good and for ill, Canada is well-known. She is no longer a stranger in the world. And though capitalists may well shrug their shoulders when some of her works come under view, still the distant estimate of Canada is favourable in regard to all that will enter into the keen competition of 1862. Shall these great expectations be realised? Shall Canada justify the anticipations excited six years ago? Or shall she seem to have retrograded—to have receded from the position formerly assumed, belying the plaudits of her friends, and ranking behind provinces then unrepresented? These are questions which cannot be overlooked in a discussion of the course recommended by the Boards of Arts, Manufactures, and Agriculture; and its wisdom depends upon the ability to evoke satisfactory replies. The money will be mis-spent which does not suffice to place the province on an eminence commensurate with its importance.

The following petition was transmitted to His Excellency the Governor General:—

"The petition of the Board of Agriculture for Upper Canada, the Board of Agriculture for Lower Canada, the Board of Arts and Manufactures for Upper Canada, and the Board of Arts and Manufactures for Lower Canada,

"Respectfully Sheweth,—

"That during the last Session of the Provincial Parliament, your petitioners severally addressed your Excellency and the other branches of Parliament, praying that Commissioners might be appointed, with the necessary powers to secure the proper representation of the industrial resources of the province in the Great Exhibition to be held in London under the authority of a Royal Commission, in the year 1862, and that the necessary funds should be placed at the disposal of such Commissioners for that purpose.

"That this prayer of your petitioners was not then granted. Yet so heartily convinced are your petitioners, both of the desirability of securing such a representation of Canada on that occasion, and of the almost unanimous desire of the people of this province that the necessary steps should be taken to that end, that they venture again humbly to approach your Excellency and solicit executive action in that behalf.

"That as the result of the position taken by Canada in the Great Exhibition held in London in 1851, and in Paris in 1855, a knowledge of the vastness of the resources of this country has been spread throughout Europe, and large investments of capital have been made here tending to the rapid development of those resources. That this is evidenced alike by the high credit which the provincial securities have always since enjoyed, by the vast sums embarked in our railways, and by the multiplication of agencies for the loaning to Canadians of transatlantic capital for the improvement of real estate. It has also been evidenced by the establishment in this country of foreign consulates, and the development of its foreign trade as well as by the efforts made (in France more especially) through those consulates further to develop and extend our commercial relations with other countries. It is also evidenced by the success of recent postal conventions with foreign governments, which, previously to 1851, would not have conceived of Canada as a country with sufficient resources to establish and maintain separate transatlantic postal communications.

"That since the year 1855 new and important discoveries of mineral wealth have been made—the rich copper ores of Lower Canada and the mineral oils of Upper Canada being specially noteworthy—new and important branches of industry have arisen; and it is fitting that these should be brought under the attention of European capitalists and men of enterprise with due prominence.

"That a new census of the province has just been taken, and some of its more prominent results ought to be compiled and laid before the European public; and this can in no way be so effectively done as through the agency of a Commission, appointed to represent Canada in this third Great International Industrial Congress.

"That all important foreign countries, even the United States (not adequately represented on previous occasions, and now suffering the ordeal of war), have announced their intention of competing on this occasion, and have appointed Commissioners. All other British Colonies (including the Acadian Provinces, before unrepresented) almost without exception have done likewise; and therefore for Canada to absent herself were to make a confession that she has, as compared with her sister colonies, retrograded, or remained stationary, which must prove prejudical to her interests. Intending emigrants cannot fail to be influenced in a greater or less degree by the position which the several colonies take in these Exhibitions, though not possibly to the extent originally anticipated, and nothing can be of greater importance to Canada than a healthy immigration to her untilled fields and her unworked mines.

"That by the 6th rule or order of the Royal Commission, no party desiring to send articles to the Exhibition can do so, or communicate with that Commission, except through Commissioners appointed as the organ of communication by the Government of his own country, and a barrier is thus placed in the way of individual efforts to exhibit Canadian products. Besides, such individual efforts must fail to produce the desired effect which more complete and united representation of the country's resources would do.

"That it is necessary that steps should be immediately taken to secure space in the Exhibition building, since the Royal Commissioners have advertised that the allotment will be made a few weeks hence.

"That if a Commission were forthwith appointed and space secured—it might, through the instrumentality of the Geological Survey and the Agricultural Societies, and by an appeal to individuals to exert themselves in this behalf, secure a large representation of the products of the soil and mines, almost for the mere cost of transport.

"That if Your Excellency were advised to lay before Parliament, should it be called together before or in the month of February next, a moderate estimate for the expenses of the Commission, preparations could be forthwith made by individual exhibitors, and articles made for submission for selection to the Commissioners in March, to be shipped during that month to Britain.

"That the cost to the province of its part in the Paris Exhibition of 1855 was, as your petitioners are informed, altogether 60,000 dollars.

"That many expenses were then incurred which might now be unnecessary, the voyage being shorter, and one transhipment being avoided. Your petitioners are convinced that out of a similar, or perhaps less grant, the half might be returned to the Provincial Treasury on this occasion, if due economy were exercised in its arrangement.

"Wherefore Your Petitioners humbly pray that Your Excellency will be pleased to appoint a Commission invested with the necessary powers to secure the representation of the industrial products and resources of this Province in the Exhibition to be held in London during the next year, and with such assurances with respect to the grant to be recommended to Parliament, as Your Excellency may be advised, it is possible to make.

"And Your Petitioners, as in duty bound, &c."

To this petition the Secretary of the Board of Arts and Manufactures has received a reply from the Provincial Secretary, announcing "that his Excellency the Governor General has had under his consideration in Council the petition and memorial of the Board, praying that a Commission be appointed to arrange for a proper representation of the products of Canada at the Great Exhibition of the Industry of all Nations, to be held in London in 1862," and informing him that, "in view of the facts, his Excellency in Council has deemed it expedient that Commissioners be appointed, through whom Canadians can procure admission of such articles as they may wish to transmit to the said Exhibition.

"His Excellency has accordingly been pleased to appoint the gentlemen named below to be Commissioners for such purpose, viz.:—

"Sir W. E. Logan, F.R.S., Director of the Geological Survey, *Chairman.*
"The Hon. Louis V. Sicotte, M.P.P., President of the Board of Agriculture, L.C., St. Hyacinthe.
"Col. Edward W. Thompson, President of the Board of Agriculture for U.C., Toronto.
"John Beatty, Jun., Esq., M.D., President of the Board of Arts and Manufactures, U.C., Cobourg.
"Jean Charles Tache, Esq., M.D., Quebec.
"Brown Chamberlin, Esq., B.C.L., Secretary of the Board of Arts and Manufactures, L.C., Montreal.
"J. B. Hurlbutt, Esq., LL.D., Hamilton."

Although no grant was obtained from the Colonial Parliament at its last session, to enable the Commissioners to procure the necessary articles to forward a complete collection to represent the natural and industrial resources of the country in the Exhibition, the Chairman has promised on his own responsibility to procure a proper collection of specimens of economic minerals; the Boards of Agriculture have undertaken to furnish a collection of cereals and other agricultural products; and the Local Commissioners have since received a promise of £1,200 from the Government to make the representation in other respects creditably complete. The Canadian products, it is anticipated, will occupy fully as large a space as in 1851 and 1855, or about 3,000 superficial feet. The collection of woods, cereals, and minerals is expected to be very complete.

The *Canadian News* thus speaks of the province, its, progress, and the benefits to be derived from these industrial gatherings:—

"These gatherings of the industry of all nations have now become so many stand-points in the onward march of the world's civilisation, from which each competitor in the lists may commence a fresh start, and to none are they likely to prove of greater or more lasting benefits by the spirit of emulation which they create than to the young countries on the western shores of the Atlantic. Prior to the great original of these International Exhibitions held in 1851, Canada and her sister provinces were comparatively speaking unknown; but the part they took in the Hyde Park Exhibition, in the display of their natural products and manufactures, removed in a great measure the ignorance which then obtained throughout Europe regarding their immense capabilities as producing and exporting countries.

"The subsequent Exhibition held at Paris in 1855, in which Canada occupied so prominent and important a position, also materially assisted in the further dissemination of information regarding the marvellous resources of a country which was formerly considered in France but as so many acres of snow; and doubtless to these displays the present flourishing position of the province may in some degree be attributed. That emigration received a considerable impetus through their instrumentality we are well aware, and as emigration is by far the most important element in the prosperity of so vast a country as Canada, one so rich in natural productions of the soil and forest, and yet so sparsely populated, we can well understand the earnest anxiety of its executive to have the province properly represented in the Exhibition of next year. It is an opportunity of which every advantage must be taken. Canada has not only to maintain the good name she secured for herself in 1851 and 1855, but she has also to prove that she, too, has kept pace with the extraordinary progress which has characterised the social events of the last decade in this hemisphere. And in this respect she will, from what we hear, fully justify all our expectations.

"Mr. Dufresnoy, member of the Institute of France and Inspector-General of Mines in that country, thus alluded to the collection of minerals at the Great Exhibition of 1851 made by the talented provincial geologist, Sir William Logan:—

"'Of all the British colonies, Canada is that whose exhibition is the most interesting and the most complete, and one may even say that it is superior, so far as the mineral kingdom is concerned, to all countries that have forwarded their products to the Exhibition. This arises from the fact that the collection has been made in a systematic manner, and it results that the study of it furnished the means of appreciating at once the geological structure and mineral resources of Canada.'

"Since the above was written, Canada has not only given to the mining world the famous Acton copper quarry, but throughout its length and breadth its vast mineral resources have been most satisfactorily proved. At the Ramsay lead mines of Carleton Place, at the copper mines of Melbourne, at the gold veins at the Chaudière—and, lastly, at the newly discovered oil springs in the western peninsula, as well as in the far east district of Gaspe, ample evidences of unlimited wealth—although as yet undeveloped—exist, and require but the necessary outlay of capital to aid, in no ordinary degree, the future material prosperity of the province. In this respect alone, the advantages, therefore, of such an Exhibition as that intended to be held in the forthcoming summer cannot be over estimated. What Canada most stands in need of is working capital, and we look upon the Exhibition of 1862 as the best opportunity that could be given of advertising her wants in this respect.

"Nor is it in minerals alone that Canada possesses such unlimited sources of wealth. Her forests, extending over 360,000 square miles, unrivalled for their variety of species and size of timber, when of full growth, are of equal importance as sources of future greatness. The specimens of her woods exhibited recently at Liverpool and other places by Mr. Quin, the timber supervisor at Quebec, and comprising oak, maple, walnut, yoke elm, birch, ash, pine of several descriptions, hemlock, tamarac, spruce, yellow and black fir, cedar, and poplar, created great interest amongst the timber merchants of England and France, and the result of Mr. Quin's mission was the inauguration of a trade in manufactured timber for English and French markets which had never before been exported from the St. Lawrence. Ahd when to these products of the forest and to the mineral wealth to which we have referred we add the agricultural produce of the soil, Canadians may well point with pride to them as evidences of resources which cannot fail to raise their country high amongst the nations of the earth.

"The Exhibition of 1862 will again bring Canada prominently before the world, and much yet remains to be known of her illimitable powers. Her soil is boundless and fertile; her forests, we have shown, have no superior on the face of the globe, and are waiting only the application of capital. Her past progress is marvellous, and her future will be more so. She now presents a field for the employment of money for investment second to none of England's colonies. The nominal rate of interest in all transactions is 6 per cent., but mortgages or ordinary investments in the banks and other public companies of the province rarely fail to bring a return of less than 8 per cent. per annum. The higher the rate the less certain the security, is an axiom in equal force there as elsewhere, but the minimum of interest being 6 per cent., a return within four per cent. above that figure, and which would appear as involving a great risk here, is there an every-day business transaction; and we shall be much disappointed if, as one of the results of next year's gathering at Kensington, an influx of British wealth for investment in the province, by which many highly remunerative enterprises would be set on foot, does not take place commensurate with the field which is presented for its employment.

"Canada will not only exhibit her mineral and agricultural products, as well as the results of her labour in her forests, without fear of the competition to which she will be exposed, but in certain other manufactures she may also enter the lists with any of her older competitors, and not be ashamed of the comparison. In the arts and sciences, the consequences of the more advanced civilisation of European nations, she will not attempt to compete, but even in these respects we learn that her appearance will be most creditable. In the manufactures to which we allude, we may mention agricultural implements, tools, cloths, tissues, &c., in the formation of which iron, copper, lead, the plastic earths, wood, hemp, flax, and straw constitute the principal materials, and all of which she has in the greatest abundance; and we may mention that, but for the present unhappy struggle in the neighbouring States, Canada would have entered into a spirited competition with Lancashire in the manufacture of cotton, as several mills on a large scale would have been ready for work had they had the raw material with which to commence their operations. Canada unquestionably held the first place in the Exhibitions of London and Paris for its display of natural wealth and its productive capacity; and if, as Prince Napoleon said at the latter Exposition, they attracted the attention and challenged the admiration of the world, we make no doubt that the efforts of the Commissioners whose appointment we recently announced, will secure a like verdict for the display to be made by the province in next year's International Exhibition."

Nova Scotia.

In June, His Excellency Lord Mulgrave, the Lieut.-Governor, by the advice of the Executive Council, was pleased to nominate and appoint the following gentlemen to be Commissioners for the province of Nova Scotia, for the International Exhibition of London;—The Honourable Joseph Howe, chairman; The Honourable A. G. Archibald, Attorney-General; The Honourable Benjamin Weir, M.P.P.; Charles Tupper, Esq., M.D., M.P.P.; John Esson, Esq., M.P.P.; John Tobin, Esq., M.P.P.; His Worship the Mayor of Halifax; Philip C. Hill, Esq.; John A. Bell, Esq.; William Cunard, Esq.; Robert Morrow, Esq.; Andrew M. Uniacke, Esq.; James Thompson, Esq.; Andrew McKinlay, Esq.; Robert G. Haliburton, Esq., Secretary to the Commission.

The Legislature have undertaken to provide the necessary expenses, Messrs. Baring, Brothers, being the Financial Agents.

A. M. Uniacke, Esq., has arrived in London as Commissioner for the province. This colony demanded a space of 120 feet by 60 feet; but they will have to moderate their requirements very considerably.

The collection from this province will comprise furniture, woods, iron, gold, and other minerals, building stores and agricultural produce, cured fish, &c. One of the objects to be sent is a section of the Picton coal seam, about 30 feet high and 140 feet base.

Prince Edward's Island.

In September, the Lieut.-Governor appointed a Commission, consisting of the following twelve gentlemen:—The Honourables John W. Gray, Thos. H. Haviland, Alex. Laird, Daniel Brenan, Joseph Hensley, Jas. C. Pope; and Daniel Kaye, G. W. De Blois, James Robertson, George Beer, John Lawson, and Henry Longworth, Esqrs.; Mr. Henry Haszard, being appointed Secretary to the Commission.

The interest felt in the Island on the subject of the International Exhibition is very general, and the contributions of those desirous of exhibiting will be larger and more varied than was at first supposed. Indeed, the colony would like to have had a space of about 1,000 square feet, an area which it is utterly impossible to grant. The colonists intend to exhibit flax and hemp, wool and homespuns, carpeting and rugs, skins and furs, leather and saddlery, and household furniture representing the island woods in their manufactured beauty, preserved wild fruits, maple sugar, maple and fruit vinegars, and all sorts of fish in tins with glass tops.

Newfoundland, which has hitherto held aloof, has, at the last moment, determined to take part in the competitive display, so that there will not be a single British North American colony unrepresented. A Commission, composed of three members of the Legislative Council and three of the House of Assembly, has been appointed by the Governor, and the colonial products will occupy a space of about 100 feet. F. A. Gisborne, Esq., has been appointed the Commissioner in London, to co-operate with and carry out the views of the Commission.

New Brunswick.—Having already* furnished the preliminary announcements and details with respect to this province, I am now able to report what has actually been done.

On the 3rd Sept., a public meeting was held in the Mechanics' Institute, St. John, for the purpose of considering matters in reference to the Provincial Exhibition in October, and the representation of the province at the London Exhibition in 1862. The attendance was large.

His Excellency the Lieut. Governor occupied the chair, and opened the meeting with a few preliminary remarks, stating the object; the benefits and advantages that would result from a proper representation of the products of the soil and the genius of the skilled artizan both at the Provincial Exhibition at Sussex in October and the World's Exhibition in London in 1862; and the necessity of a combined effort in order to accomplish success. A series of resolutions were then passed as follows:

Resolved,—As the opinion of this meeting, that every exertion should be made to ensure a full and creditable representation of the resources and productions of the Province, at the International Exhibition to be held in London in May 1862.

Resolved,—That this meeting fully appreciates the importance of having the various industrial interests of the Province duly represented at the Provincial Exhibition in Sussex Vale, as affording the best opportunity of making selections for the London Exhibition.

Resolved,—That the aid given by the Legislature and the Government to secure a proper representation of the resources and productions of our country, at the London Exhibition, and for the encouragement of the Provincial Exhibition, must prove inoperative and result in failure, unless the people take an active interest in these desirable objects, and lend their individual aid and co-operation.

Resolved,—That to render the Exhibition a successful one and a credit to the Province, it requires the zealous assistance and contributions of the artists and manufacturers of the City and County of St. John.

In introducing the first resolution, his Honour Judge Ritchie spoke of the importance and usefulness of Exhibitions such as those which were shortly to take place. The importance of these Exhibitions was acknowledged both in Europe and America, and the benefits resulting therefrom were considered to be great. He then alluded to the manner in which Nova Scotia and New Brunswick were represented in the London Exhibition in 1851, and in the Paris Exhibition at a subsequent period, and compared it with the creditable display which the sister province, Canada, had made on those occasions. He was informed that at the recent exhibition meeting at Halifax, Mr. Howe had stated that in the Paris Exhibition large compartments were set apart for Nova Scotia and New Brunswith the names of the two provinces in large letters above them, and beneath *nothing at all*; that on beholding this, he (Mr. Howe) had shrunk away from the building in dismay and disgust. His Honour then went on to say that he, too, had visited the Paris Exhibition, but he was not so fortunate as his friend Mr. Howe of Nova Scotia; he not only had not seen any articles to represent either of the two provinces, but even their very names were not observed by him. Whether some friendly hand had in pity removed them he could not say. It were better, on an occasion like that, that Nova Scotia or New Brunswick should be unnamed, than, being unrepresented, they should be shamed. He hoped that a similar fate would not be in store for New Brunswick in 1862. It was absolutely necessary, in order to have a creditable representation both at the Provincial and World's Exhibitions, that the utmost exertion should be made by all classes. The Legislature had granted a sum of money to aid in the movement, and he would have been glad had the circumstances of the country warranted an appropriation of five times the amount allotted. Much might be said, and columns written with a view of inducing persons to settle in the Province, but he did not believe that all these efforts would accomplish a tithe of the good which will accrue from these Exhibitions. His Honour then concluded by alluding to the difficulties in the United States, and the advantages, which were thus offered for successfully carrying on manufacturing operations, and the incentive which this state of things should be to their manufacturers in endeavouring to secure a creditable display of their productions at the World's Exhibition.

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* Vol. ix., p. 663.

Mr. Wm. Wright, the mover of the second resolution, said:—The benefits resulting from the holding of Exhibitions such as those which were shortly to take place, were no longer a question, but had assumed the proportions of an admitted fact. The opportunities thus afforded to the industrial classes to advertise their business by displaying the various results of their skill and genius could not be too highly prized. Hitherto New Brunswick was too much known abroad as part and parcel of Canada; Nova Scotia was considered merely as an important military and naval station; Prince Edward's Island was only recognised on account of the illustrious name it bears; while Newfoundland was regarded as a mere fishing station. It should be the object of New Brunswickers, as far as they were concerned, to remove these injurious impressions, by making a creditable display of the various mechanical, artistical, mineralogical, and agricultural productions at the Exhibition in Sussex, from which a judicious selection would be made for the London Exhibition.

Mr. Chas. N. Skinner, in seconding the resolution, said that if the only manner in which New Brunswick had been represented in London in 1851 was by the figure of an Indian in a bark canoe, a numerous and judicious representation of her various products would show to great advantage in 1862, and give a very favourable idea of the progress made in eleven years. He then dwelt in glowing terms upon the great resources of the province—mineral, agricultural and otherwise; flatteringly alluded to the skill, industry, and assiduity of the mechanics and artists; referred to the unexampled success attained by her shipbuilders in constructing vessels which, for swiftness and other excellent qualities, cannot be surpassed by those of any other country in the world. He hoped that the most strenuous efforts would be made by the people of the province to secure a creditable representation in London in 1862, in order to show the people abroad that New Brunswick was a distinct and separate portion of Her Majesty's dominions in North America, possessing within itself all the elements of greatness, which required only industry, energy, and perseverance, to secure a full development, and establish the name and fame of the country, rendering it one of the brightest jewels in the Crown of Great Britain.

The Hon. S. L. Tilley, in moving the third resolution, set forth the advantages that would accrue from a respectable representation at both exhibitions; felt gratified that His Excellency, before departing from the shores of New Brunswick, would have an opportunity of witnessing the exhibition at Sussex, and of forming an opinion of the resources of the province over which he had presided for a number of years, and the various localities of which he had frequently visited; and referred to the efforts made by the Legislature and the Government in providing means and giving encouragement to the forthcoming exhibitions, affirming the correctness of the statement made in the resolution, that unless the people generally take an active interest in these desirable objects and lend their individual aid and co-operation, the efforts of either the Legislature or the Government would prove of non-effect. He referred to the efforts which Nova Scotia was making, and thought that these efforts on the part of their neighbour should and would excite a laudable spirit of emulation in the minds of the people of this province. The exhibition at Fredericton, some years since, was a credit to the province, and could the articles that were even exhibited at that time be transported to London in 1862, the representation of the province would be no mean affair. But since that time progress had been made, and it was necessary that increased exertions should be put forth to surpass all former efforts. He observed, in order to show the progress that had been made in the province within a few years, that at the time the last census was taken, the whole value of the manufactures of the province for one year amounted to but £130,000; now, however, in the same length of time, one house alone had manufactured between £40,000 and £50,000 worth.

Mr. J. W. Lawrence, in moving the fourth resolution, spoke of the disadvantage which the people of the Province laboured under in depending too much upon the lumbering business, not that this business had not been, and would not become, a source of benefit, but that too much attention had been paid to it to the disregard of other pursuits less hazardous in their operations, and eventually more surely profitable. If the people of the Province were less dependent on this business, and would turn their attention to agricultural and mechanical pursuits, the fluctuations in business consequent upon the depression of the lumber trade would be neither so frequent nor yet so disastrous in their consequences. The people of Nova Scotia were more wise in this respect than those of New Brunswick; they engaged in those branches of trade which brought in more certain and satisfactory returns. The Government was entitled to credit for the efforts made to render the Exhibition at Sussex creditable, and secure a proper representation in London, and these efforts should be duly appreciated by those for whose benefit they were intended. He referred to the prize of 400 dollars which the authorities of Nova Scotia offered for the best essay on that Province, and then dilated upon the benefits which would accrue therefrom. He also alluded to the publication, by authority of the Government of New Brunswick, of the essays for which prizes had been offered and given by the directors of the Mechanics' Institute of St. John, on "New Brunswick as a Home for Emigrants, and the best means of promoting Immigration," and the beneficial effects which the circulation of these publications will produce. He concluded by pronouncing the press, the best medium through which to make the country and its resources more widely known and more generally appreciated.

On the 1st of October, the local show or fair, preliminary to the selection to be made for the London Exhibition, was opened at Sussex Vale and continued for the five following days.

The Hon. Mr. Manners, the Lieut,-Governor of the Province, opened the Exhibition. The following address was presented to him:—

"*May it please your Excellency:*

"The Provincial Board of Agriculture having decided that an Exhibition should be held this year at Sussex Vale, and having delegated to us, as its Executive Committee, the authority to superintend and manage it, we beg to announce that it is now ready for the inspection of the public; and we respectfully request that Your Excellency will be pleased to open the same.

"The Act creating the Provincial Board of Agriculture having been passed with your Excellency's sanction, we hope that its proceedings thus far have met with your Excellency's approval; and that this Exhibition will be attended by such results as will justify the encouragement given by the Legislature, and satisfy the expectations of the country.

"As that admits the holding of Exhibitions every three years, we have made arrangements for a large attendance of exhibitors and spectators, and have felt ourselves justified in incurring considerable expense in endeavouring to make the building and grounds as commodious and attractive as time would permit.

"As your Excellency has always taken a deep interest in the operations of the Board, it affords us, its representatives, great satisfaction to have the advantage of your presence at the inauguration of the first Provincial Exhibition held under its auspices, and that you should have had so favourable an opportunity before leaving the province, of examining its various resources and productions; and we trust that the evidences and the progress made by the Colony under your Excellency's administration may not be the least pleasing feature of your sojourn amongst a loyal and industrious people.

"On behalf of the Board of Agriculture, we take advantage of this, in all probability the last occasion that may offer, to thank your Excellency for the valuable advice and assistance which, individually and as a Board, we have invariably received from you in the performance of our duties.

"(Signed) "A. E. BOTSFORD,
"Chairman, &c."

His Excellency then read the following reply:—

"Mr. Chairman and Gentlemen, Members of the Executive Committee of the Provincial Agricultural Board,—You have been called by the Legislature and the Provincial Board of Agriculture, of which you are on this occasion the representatives, to collect and to prepare, for the purpose of exhibiting to the people of New Brunswick, and to all who may come hither to examine them, samples and specimens of all articles, the growth, produce, or manufacture of the province. These are onerous and important duties, and I can assure you that I have had the greatest satisfaction in giving to you every assistance in my power.

"It is my firm belief that it is of the greatest importance to New Brunswick that she should be in a position next year to assume and maintain at the General Exhibition in London the position to which her industrial progress and natural resources entitle her. And if this Provincial Exhibition be regarded as the preparatory step to entering into competition with the world next year, not only the competitors, but every inhabitant of New Brunswick, whether he be rich or poor, and in whatever part of the Province he may reside, will, I think, recognise the fact that he has a personal interest in its success.

"I hope that this Exhibition may be the successful predecessor of other Exhibitions increasingly successful; and I can assure you, with heartfelt sincerity, that although absent, I shall always continue to feel the deepest and warmest interest in the prosperity and progress of the agriculture, commerce, and manufactures of New Brunswick."

His Excellency then proceeded, in company with Jas. G. Stevens, Esq., Secretary of the Agricultural Board, to view the various agricultural and mechanical products, while Mrs. Manners Sutton and family, in company with the Hon. A. E. Botsford, ascended to the gallery, to view the fine arts, needle-work, &c.

The following account of some of the principal articles shown, is condensed from the local paper, the *New Brunswick Courier*, of St. John:—

"*Agricultural.*—From various sections of the province were exhibited numerous samples of really excellent wheat; various kinds of oats, which it would be difficult to surpass in the best grain-growing countries; barley, rye, peas and beans, which could not fail to command the attention and excite the admiration of the beholder; grass seed of good quality; wheat and rye flour which would compare favourably with the fancy brands of other countries; oat, corn and buckwheat meal of excellent quality; squashes, pumpkins and cucumbers of formidable proportions; turnips, carrots, beets, parsnips, and mangold wurtzel, of extraordinary size; cabbages, some of them as curious in appearance as others are remarkable in size; tomatoes, such as we have rarely seen surpassed; and fruit, such as apples, pears, &c., which looked very good. The dairy too was fairly represented in the shape of butter, both roll and firkin, no doubt as good in quality as it was in appearance; and cheese equally commendable.

"*Mechanical.*—The display of the skill, industry, and genius of the mechanics of New Brunswick, was truly more than creditable, and a convincing proof that they are able to compete with the mechanics of other more populous and wealthy countries.

"There was a good display of saws, edge tools, and steel springs, for railway and road carriages.

"The display of carriages and sleighs was very effective.

"Messrs. Flemming and Humbert's foundry and machine shop is well represented by two steam engines, one an oscillator and the other a stationary engine. They are neatly finished, have a boiler attached, and when set in motion, as they occasionally are, work admirably. There were also fire engines, brass castings, and a model steering apparatus.

"The tack factory of Mr. Foster, of St. John, displayed a neatly arranged assortment of tacks, brads, &c.

"There were samples of Albertine oil, and a specimen of Albert coal in its crude state; models of the St. John suspension bridge, Hammond river, and other railway bridges.

"Of native woods there was an abundant supply, some specimens polished, others in the rough state. The collection furnished by Mr. D. R. Munro, clerk in Lloyd's office in St. John, was the most numerous, numbering upwards of fifty specimens, beautifully polished, besides being accompanied with the foliage, and in some cases the fruit of specimens represented. Mr. Munro had likewise on exhibition the model of a patent self-connection for locomotives.

"The pianos from the factory of Mr. John R. Coleman, of St. John, attracted considerable attention.

"There were, besides the articles enumerated, a great quantity of agricultural implements, such as rakes, hoes, forks, &c. Stoves in great variety; spinning wheels, capstans, earthenware from the manufactory of Wm. Warwick, of St. John; minerals of the province in profusion, and a great collection of other things which our space will not allow us to particularize. We cannot, however, leave the ground floor, with its profuse display of the useful, without making particular mention of a collection of "Specimens of Dried Plants," secured by the Rev. James Fowler, of Kouchibouquac, Kent Co. The collection embraces a specimen of the foliage of almost every conceivable plant known to grow or exist in this province. Upon the sheets of cardboard to which these specimens are attached, is written the technical term of each plant, and the meaning in English, and the portion of the floral kingdom to which it belongs. This case is invaluable, and cannot have been secured without the expenditure of much time, toil, and study. A monument, manufactured from Memramcook freestone, by F. W. Clear, of St. John, occupies a prominent position.

"Rankine's steam biscuit bakery, St. John, was represented by a case of various descriptions of biscuits.

"The display of trunks, valises, &c., from the factory of Alex. Sime, of St. John, was not undeserving of attention. The specimens of antique book-binding from the establishment of Messrs. J. and A. McMillan, of St. John, were much admired.

"There were some very good samples of printing and book paper, hardware, Manila, dry goods and grocers' wrapping papers; sheathing, carpet and tailors' pattern papers. Samples of the material, in various stages approaching to completion, from which the various kinds of paper are made, were also exhibited.

"There was an assortment of confectionary from Mr. Brandt, of St. John; preserved salmon from Messrs. J. and A. D. Sheriff, and Mr. W. H. Fraser, of Northumberland; spiced salmon by Mr. William Blizzard, of St. John; preserved lobsters from Mr. Thomas Fleigher, of Northumberland; syrups in profusion from Mr. Fountain, of Miramichi; and rhubarb and currant wines, and grape, sugar, spirit, from the St. Andrew's Distillery.

The Executive Committee of the Board of Agriculture have since been actively at work in selecting the articles considered deserving to be forwarded to London, and we hear of the following having been chosen among numerous others. Messrs. Flemming and Humbert are constructing an oscillating engine for transmission. The following will form part of the London Exhibition:—

"Two Newell posts and six balustrades, of different native woods, from the establishment of Messrs. Fairbanks and Co. A fine assortment of hatters' and furriers' work, from Mr. A. Magee, including the beaver overcoat and sleigh robe (bear and lynx) which were greatly admired at Sussex. A set of harness, from Mr. William J. Brown, King-street. An assortment of biscuits from Rankine's bakery, Dock-street. Homespun from the Mispeck factory, and from Messrs. Titus and Snow's mills in the Titus settlement, King's county. Various kinds of paper manufactured by Messrs. Philps Bros. Stained glass from Mr. G. F. Thompson, Dock-street. Brass castings and plumbers work from Mr. Charles Pearce and Messrs. V. Hayward and Co. Iron in all its stages, from the Iron Works of W. H. Scovil, Esq. An assortment of axes and other edge tools from Messrs. Broad, Messrs. Spiller, and another establishment. Horse shoes, to be neatly prepared, from Mr. Scrymgeour. A superior iron plough and grubber, from Messrs. D. and J. Willet. Carriage and railway springs from W. H. Adams, Esq. Painted blinds and a grained door (New Brunswick pine in imitation of oak), from Mr. J. C. Miles, Canterbury-street. An improved steering apparatus from Mr. D. L. Allen. Oils and the materials from which they are manufactured, from the New Brunswick Oil Works Company. Models of a saw mill, and the locomotive which drew the Prince of Wales over the railway, from Mr. John Hunter, in the railway workshop. A collection of native woods of all kinds. Native woods, with twigs and leaves attached, from Mr. D. R. Munro, of Lloyd's office. A collection of dried plants, grasses, &c., from the Rev. James Fowler, Kouchibouquac. A splendid mirror from Mr. Potter's establishment. A buck-saw frame, with an ingenious arrangement for tightening the saw, from Mr. Oliver Barbarie, Albert Colony.

"Handsome barrels for containing the grains which will be sent to London are now being manufactured at the Penitentiary."

ON THE ESSENTIAL OIL OF PIMENTO FROM THE BERRY AND LEAVES.

By Dr. L. Q. Bowerbank.

The following communication was lately addressed to the Secretary of the Royal Society of Arts, Jamaica:—

I forward a phial of essential oil extracted from the berry of the pimento. The process of extraction was thus:—A handful of the spice as it is prepared for market was placed in a glass retort with half-a-pint of water, the neck of the retort luted to the receiver, and the flame of a spirit-lamp applied to the retort. The vapour arising, on being condensed, assumed the form of a milky liquid, which, on being suffered to remain quiet, separated into globules of oil, which sank to the bottom of the vessel, leaving the water transparent; that being decanted, left oil.

"Bryan Edwards, in his "History of the West Indies," thus notices the oil of pimento:—"It is remarkable that the leaves are equally fragrant with the fruit, and, I am informed, yield on distillation a delicate odoriferous oil, which is commonly used in the medical dispensaries of Europe for oil of cloves."

There is nothing new in the fact of the pimento producing an essential oil; but at this period the attention of the public, which is now excited by the considerations of the minor productions of Jamaica, may be beneficially directed to this branch of profitable industry. A large quantity of leaves are annually wasted while the crops of pimento are being gathered. Were it generally known and appreciated that a valuable product might be cheaply and easily extracted from such portions of the tree as are now suffered to remain useless, much good might result. It would open to the industrious man in humble circumstances a daily source of profit; for a very small still of a few gallons, daily set in motion by his kitchen fire, would yield a considerable return at the year's end. And where, in this Isle of Springs, can water and the leaves of pimento not be procured—where

> ——'Sabean odours from the spicy shore
> Of Araby the blest'

abound?

Further information from the Society on this subject, regarding the remarkable value and demand of this oil, as well as the cheapest process for extracting it in considerable quantities, cannot fail of being useful to the public.

In reference to the above communication, we would make the following remarks:—

Pimento-berries bruised and distilled with water yield the pimento-oil of commerce. This oil is officinal in the Pharmacopœias of the London, Edinburgh, and Dublin Colleges.

Dr. Royle states that, "it is obtained in the proportion of 1 to 4 per cent. by distilling bruised pimento with water. It resembles, and is sometimes sold for oil of cloves, or employed to adulterate it."

Dr. Pereira, in his work on Materia Medica, observes—"Mr. Whipple informs me that from 8 cwt. of pimento he procured 41 lb. 6 oz. of oil (heavy and light): this is nearly 6 per cent. He also informs me that the light oil comes over first. The oil of pimento of the shops is a mixture of these two oils. By distillation with caustic potash, the light oil is separated; the residue, mixed with sulphuric acid and submitted to distillation, gives out the heavy oil.

"*Light Oil of Pimento* (Pimento Hydro-carbon) has not to my knowledge been previously examined. Its properties appear to be similar to those of the light oil of cloves. It floats on water and on liquor potassæ, and is slightly reddened by nitric acid. Potassium sinks in, and is scarcely if at all acted on by it.

"*Heavy Oil of Pimento* (Pimentic Acid), very similar to caryophyllic acid or the heavy oil of cloves. It forms with the alkalies crystalline compounds (alkaline pimentates), which become blue or greenish on the addition of the tincture of chloride of iron, owing to the formation of a ferruginous pimentate. Nitric acid acts violently on, and reddens it."

The medical uses of the oil of pimento are very limited. It is sometimes employed to relieve toothache, to correct the operation of other medicines, as purgatives and tonics, and to prepare the officinal essence, spirit, and distilled water of the Pharmacopœias. The Edinburgh College directs the spirit of pimento to be prepared by distilling the bruised berries with spirit; and the same College, together with the London, obtain their distilled pimento-water by distilling the berries with water.

The following is an analysis of the husks and kernels of pimento, as obtained by M. Bonastre:—

	Husks.	Kernels.
Volatile oil	10·0	5·0
Green oil	8·4	2·5
Solid fat oil	0·9	1·2
Astringent extract	11·4	39·8
Gummy extract	3·0	7·2
Colouring matter	4·8	——
Resinous matter	1·2	——
Uncrystallised sugar	3·0	8·0
Malic or gallic acid	0·6	1·6
Lignin	50·0	——
Saline ashes	2·8	1·9
Loss	1·6	1·8
Red matter insoluble in water	——	8·8
Pellicular residue	——	10·0
Brown floccule	——	3·2
	100·0	100·0

We were not aware that the oil had hitherto been prepared from the leaf of the pimento, but have little doubt that this can easily be effected; in fact, we find, on reference to Dr. Pereira's work, that an analogous oil is obtained in Ceylon from the cinnamon leaf—"oil of cinnamon leaf." It is exported from Ceylon, and is sometimes called, on account of its colour, clove oil. "I am informed by a gentleman," adds Dr. Pereira, "on whose estate in Ceylon it is obtained, that it is procured by macerating the leaves in sea-water, and afterwards submitting both to distillation. It is a yellow liquid, heavier than water, and has an odour and taste analogous to those of oil of cloves."

We fear the consumption of pimento oil is too limited to render it an object of manufacture on a large scale; but, as our correspondent justly observes, instead of wasting, as at present, the leaves and young shoots broken off in gathering the berry, it would be well that they should be turned to some good account. We know of no finer liqueur or dram than that prepared from the pimento berry, and we have been informed that a dram no way inferior can be obtained by substituting the leaves for the berry. We would suggest that a trial should be made.

While on the subject of pimento, it may be observed that the true bark of this tree at certain periods of the year appears to contain a very large quantity of tannin; and we find that it is a common practice to bury pimento sticks in the red iron-clay, by which means, through the tannin contained in them combining with the iron of the soil, they become stained of a deep black colour. When cutting down trees for the purpose of thinning or opening out a pimento walk, it would be worth while to collect the bark, in order that its astringent or tanning properties may be tested.

For purposes of cookery, we have often observed twigs of dried pimento leaves suspended in kitchens; these leaves retain their aroma for a long time. Would it not be worth while to make them an article of export as a substitute for the berry, more especially when the usual crop is short or fails?

Home Correspondence.

RAILWAY MANAGEMENT FROM A TRAVELLER'S POINT OF VIEW.

Sir,—Mr. Baker and those who discussed his paper on railways, put some truths in a prominent light. It is a truth that daily railway travelling produces a mischievous effect on the health of a great number of persons, though there are many of strong health and vigorous elastic muscles, and with nerves like cart ropes, who may set it at defiance. He whose occupation is out of doors, and more physical than mental, suffers less than those who sit down after their journey to mental operations. Nervous irritability and indigestion are caused by the railway carriage more than by the omnibus, from the fact of the vibrations being more minute, regular, and continuous, and for this reason a first class railway carriage may be worse than a second or third, which, by jumping, puts the passenger's body more into a condition of exercise by irregular movement. A passenger seated in a first class railway carriage, compresses a certain number of the circular tubes, through which his blood runs, to a tape-like form, and the circulation is checked till the feet get cold and the limbs benumbed, and the vibrations counteract the peristaltic motion of the bowels. This is why, in a long journey, the appetite is lessened, and moreover the air in the closed carriage is more or less vitiated, owing to imperfect ventilation. The second and third class carriages, the motion of which is less regular, affect neither the circulation nor the digestion to the same extent, and the omnibus is still less mischievous.

The old-fashioned carriages on the highway, with two sets of springs, diminished the vibration to a greater extent than our best railway carriages with one set, and there was a greater amount of oscillation and irregularity of movement. Every one knows that the regular vibration of a trembling ocean steamer is far more mischievous to digestion than a sailing vessel. The pleasantest and most healthy railway carriage, when not too crowded, on a fine day, is one of the long open third-class, roofed over, but without seats or partitions. In this case, the body of the passenger sways about on his own natural springs, and both circulation and digestion can go on as in walking exercise.

There is no doubt that, as at present constructed, the heaviest carriages are the easiest, that is to say, the *inertia* of the body and frame brings the springs to the pressure requisite for ease of movement without any load of passengers, and the small number of passengers scarcely affect the springs at all, so that they are easy for one or for eighteen. But carrying one ton of passengers upon five tons of vehicle is not a very profitable thing for railway companies, and naturally they do not encourage it. Mr. Baker is quite right in attributing the greater part of the difficulty to defective mechanical construction. The evil vibration commences with the contact and non-contact of the half-sledges called wheels and the rails, and it travels upwards through half-dummied springs to every portion of the framework. Spring cushions in first-class carriages slightly lessen the sensation while sitting, but not to the feet of the sitter.

It is not difficult to show categorically the many points that are mechanically wrong, nor to set forth the mechanical remedies. It would not be difficult to construct a light and effective train, free from oscillation, and nearly free from vibration, and equally easy to the sensations whether loaded or unloaded, but the first thing would be to catch a railway authority with power and will to carry the principle into effect, and the next thing would be to satisfy railway directors that their existing stock would not be damaged by a superior class. And it would be important also to work with such a train on a line without connection with other lines. This will come to pass when lines shall be constructed wholly for the transit of passengers and not of goods, one of the essential conditions of safety with respect to transit. One-fourth of the present dead-weight of trains will suffice when the chances of "pitching in," arising chiefly from fast and slow trains on the same line, in rapid succession, are removed. Whatever may be said of the advantages of a heavy engine in increasing power, it is quite clear that dead weight in a train must be a disadvantage. Axle-friction is 4lbs. per ton; wheel-friction at low speed runs to seven and eight, and at high speeds to 20 and 25lbs.

In railway improvement, as in other things, we must begin at the beginning, and it would be well if Mr. Baker and his friends would settle the first question, "What is a wheel?" I am, &c.,

W. BRIDGES ADAMS.

Sir,—I beg to offer a few remarks on the able paper read by Mr. T. Baker. Every railway passenger knows full well that the "violent oscillation and increasing jar of the railway carriage" detracts greatly from the pleasure of travelling, and is doubtless the cause of much physical derangement, and of numerous accidents.

I am surprised that the discussion on the paper did not bring out the real cause of the discomfort, and that no one suggested an adequate remedy.

I have made the subject a matter of study for years, and am convinced that the cause of the evils is not so much in the construction of the carriages, or in the permanent way, but is to be attributed to the unbalanced momentum of the piston, piston-rods, connecting-rods, and cranks.

As the locomotive is now constructed, the cranks are at an angle of 90° to each other, so that when one cylinder is giving out its maximum force the other is at its minimum, or dead centres, and *vice versâ*.

They are, of necessity, fifteen inches or more from the longitudinal central line, and, as the momentum of each piston is always diametrically opposed to that of the other, the locomotive is forced obliquely across the line, thus forming a zigzag every revolution of the driving wheel, that motion being communicated, through the buffer-springs, to every carriage in the train, but more particularly to the last carriage.

The action of the cranks is identical with that of two men pulling in a boat, alternately instead of in unson, and the results are the same.

Let any one observe the approach of a train at forty or fifty miles an hour, they will find that the engine never runs in a right line, despite of the load which is pulling at it, but in a zigzag course, which is reciprocrated by the carriages, and the higher the velocity the greater the oscillation; this defect in the locomotive is the cause of great destruction and the derangement of the permanent way, and of the engine and rolling stock, and is, beyond doubt, *the* fruitful source of accident.

I am now taking out a patent for "Improvements in Locomotives," the objects of which are to so combine the mechanical parts that all the momentum of the various portions shall be on the longitudinal central line of the engine; it can therefore have no power, at any velocity, to deviate from a right line.

I am confident that railway travelling may yet become very much safer, far more agreeable and conducive to health, and at a greatly reduced cost to railway companies. I am, &c.,

JOSEPH FAULDING.

338 and 340, Euston-road, N.W.

STEERING OF STEAMERS.

Sir,—The imminent risk to which the *Great Eastern* and many another noble vessel have been exposed from loss of her rudder, proves that, though the rudder may be, and I believe is, the best ordinary means for steering, it is not safe to depend upon one instrument alone, which, if injured or destroyed, leaves the vessel, for a time, at least, helpless, while there are frequent occasions when more rapid change of direction than the rudder alone will give is most desirable. This is especially the case for vessels of war which may have to fight when they have little or no headway, when the rudder does not act at all, or very little. Such a vessel must be able to turn short and quick if it is to act effectively as a ram. If it be correct that the *Warrior* requires a circle of three miles to turn round, her chance of running stem on an enemy trying to avoid her seems but small.

For these reasons I shall be glad to learn that Mr. Harrison's suggested experiments on different modes of steerage were in progress, for it is very probable that smaller changes than putting in two instead of one screw would be sufficient; such a change would involve the rebuilding of a large part of the ship.

It seems to me essential, for ships of war at least, that there should be means for quickly turning round the vessel, whether otherwise at rest or not, and that the apparatus should be below water, out of the reach of shot. A small screw near the head, and set amidship, so as, when revolving in one direction, to drive her head starboard, and the contrary when reversed, might be put into a ship without very much reconstruction; but a screw so situated would offer some obstruction, and would probably catch weeds, &c., and, perhaps, be stopped at a critical moment. These objections could not be urged against another plan, that of making the engine work pumps, drawing water, through openings guarded by gratings, at the bows, and discharging it backwards at the beam at each side. When both pumps act equally, the effect of this employment of a small part of the steam power would be simply to drive the vessel forwards with a force equal to that with which the water was driven backwards, but by working them unequally, the course of the vessel would be changed, or if the direction of the current of one of the pumps were reversed, the vessel might be turned round without any other change of place. The same powerful and rapid steering power might be thus obtained as would be given by two screws or paddle wheels working independently, but the pumps might be put into a ship with far less change of her structure than would be necessary for substituting two screws for one, though that might be the best plan in building a new ship, not, however, in substitution of, but in addition to the rudder, which is the best steering instrument for common use. It is safest to have two, or even three modes of steering, lest one should be insufficient or should fail.

I am, &c., P. H. H.

Proceedings of Institutions.

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Alton Mechanics' Institution.—The twenty-fourth annual report of this Institution, for the year ending September 30th, 1861, speaks favourably of the position of the Institution, which continues to merit the liberal support accorded to it. There have not been many books added to the library in the course of the year, but their arrangement has been improved so as to make more room. Twenty-three volumes have been purchased, twenty-one of which were to replace the old copies which have been worn out in the service—thus making a total number of 1,510. The issues during the year have been more numerous than usual, amounting to 3,315, or an average of nearly 64 per week. The winter session opened with a concert, given both in the morning and the evening, but the former met with so little encouragement that it was only after a long discussion that the Committee determined to pursue the same plan in the ensuing autumn. The Committee were disappointed of several lectures. Thirteen were given, and were as usual well attended. Two on "The Chemistry of the Breakfast Table," by Mr. Mason, of Winchester; "An Hour with an Odd Character," by Mr. Lidgate, of Guildford; on "The Public Games of Ancient Greece and Rome," by the Rev. H. A. Plow, B.D.; on "A Month at Naples during the late Campaign," by Henry Cunningham, Esq.; on "Jerusalem," by A. C. Crowley, Esq.; on "The Age of Dragons in Great Britain," by B. Waterhouse Hawkins, Esq.; on "Marsupial Animals," and on "The Geographical Distribution of Animals," by J. W. Curtis, M.D.; on "Whitfield and his Times," by the Rev. W. Brodie, of Alresford; on "The Luminous and Calorific Phenomena of Voltaic Electricity," by Mr. E. Wheeler, C.E.; and two on "Water," illustrated by Experiments and Working Models, by Mr. F. Crowley, Mr. Waterhouse Hawkins was to give a lecture on the "Gorilla and other Monkeys compared and contrasted with Man;" Mr. Simpson, one on "Travelling in our Forefathers' Style and our Own;" Rev. W. A. Bartlett, one entitled, "Incidents in Ancient and Modern Travel;" Rev. T. G. Clarke, one on "Entomology;" and R. Fitz-Gerald, one on "Colour." Other lectures and readings are expected. As announced in last report, a *soirée* was held in November, 1860. It excited the usual amount of interest, and was attended by 204 individuals—as many as the Town Hall could conveniently accommodate. In the sixth annual Museum Report, the Curator states there have been several valuable additions made to the collections by various donors. The secretary of the Music Class reports that Mr. Powell continues to attend weekly to give instructions in various branches of instrumental music, and that the average number of members during the year has been eleven. Some younger members are now expected to join, but if the number does not decidedly increase it is probable the class will be discontinued at the termination of another year. The number of subscribers amounts to 259, viz., annual subscribers of 10s., 60; annual subscribers of one guinea, 46; quarterly subscribers, 134;

quarterly subscribers who have paid part of the year and left, 19.

LONDON MECHANICS' INSTITUTION.—The 152nd quarterly meeting was held on Wednesday evening, 4th December, in the lecture room of the Institution, Mr. T. A. Reed in the chair. It appeared from the report, read by Mr. T. J. Pearsall, the Secretary, that the receipts of the past quarter had been £237 18s. 7d.; the payments, £199 1s. 6d.; and the balance in hand, £38 17s. 1d.; the number of subscribers being 447. The efforts of the Donation Fund Committee to release the trustees from the liabilities and expenses incurred, had, by the repayment of the sums advanced by them in former years, lessened, in fact, the debt of the institution, by a reduction of liability of £312 19s. 10d. The lectures and classes were referred to as in a satisfactory state. The meeting itself was characterised by good spirit and good feeling, judging from the cheers which greeted the suggestions that were made for each individual to exert himself to increase the number of subscribers, and the proposals to hold some gatherings and entertainments for the benefit of the Institution. Reference was made to the success of the members of the Institution at the last annual Examination of the Society of Arts, and to the efforts of the Local Board of Examiners in promoting the efficiency of the classes. A prize of £5 has been offered by the Local Board to the members, for the best essay "On the judicious selection and right use of books," to be sent in on or before the 1st of June, 1862.

MEETINGS FOR THE ENSUING WEEK.

THURS...Philological, 8.
Royal Inst., 3. Professor Tyndall, "On Light" (Juvenile Lectures).
SAT.......Royal Inst., 3. Professor Tyndall, "On Light" (Juvenile Lectures).

PATENT LAW AMENDMENT ACT.

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APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, December* 6*th*, 1861.]

2946. R. A. Brooman, 166, Fleet-street—An improved cup or vessel for administering liquids. (A com.)
2948. W. Bray, Abinger-road, Lower-road, Deptford—An improved locomotive apparatus particularly adapted to agricultural purposes.

Dated 24*th November*, 1861.

2952. J. B. Hulard and L. G. Poupel, Paris—An improved process for hardening stones and plaster of Paris, and making them impervious to water.
2954. G. Lowry, Salford—Certain imp. in machinery for carding and hackling flax, tow, and other fibrous substances.
2956. J. Goudie, Everard-street, Hartlepool—Imp. in reefing and stowing the sails of vessels.
2958. J. Willcox, Ludgate-hill—Imp. in sewing machines and in apparatus connected therewith. (A com.)
2960. J. H. Johnson, 47, Lincoln's-inn-Fields—Imp. in machinery or apparatus for shelling and cleaning rice and other grain. (A com.)

Dated 25*th November*, 1861.

2968. I. Davies, Larkfield Nursery, Wavertree, near Liverpool—Imp. in the construction of roofs for dwelling houses, horticultural erections, and other buildings.
2970. W. Sellers, Keighley, Yorkshire—Imp. in means or apparatus for sewing.

Dated 27*th November*, 1861.

2980. F. A. Calvert, Manchester—Imp. in machinery and apparatus for burring, carding, and combing wool and other fibrous substances.
2984. J. Cook, Glasgow—Imp. in pendent lamps.
2988. H. Mearing, 18, Great Randolph-street, Camden-town—An improved lucifer match and prepared paper for igniting the same.
2990. W. Clark, 53, Chancery-lane—Imp. in the clasps or fastenings of purses, bags, portfolios, tobacco pouches, and other like articles. (A com.)
2992. J. H. Soller, St. John-street-road—Imp. in cases for holding and supplying caps to the nipples of rifles and other fire-rms.
2994. M. Henry, 84, Fleet-street—Imp. in the manufacture of soap and the preparation of materials for the purpose. (A com.)
2996. S. Amphlet, Birmingham—An imp. or imps. in ornamenting surfaces.

[*From Gazette, December* 13*th*, 1861.]

Dated 26*th August*, 1861.

2127. F. Tolhausen, 35, Boulevart Bonne-Nouvelle, Paris—A new and economical method of producing dynamic electricity, thereby obtaining useful chemical compounds. (A com.)

Dated 28*th August*, 1861.

2141. J. Ronald, Liverpool—Imp. in machinery for dressing hemp, flax, manilla, and other like long fibrous material.

Dated 20*th September*, 1861.

2351. J. Oliver, Colchester, J. Grantham, 31, Nicholas-lane, W. Sinnock, Sylvan-cottage, Woodford, Essex, and M. R. Leverson, 12, Saint Helen's-place—Imp. in the mode of obtaining certain chemical substances, and in the treatment of vegetable fibre, and in obtaining manurial and other products therefrom.

Dated 18*th October*, 1861.

2593. J. Crosthwaite and T. E. Arman, Liverpool—Imp. in the construction of targets, and in signal apparatus to be used therewith.

Dated 24*th October*, 1861.

2658. G. Davies, Serle-street, Lincoln's-inn—Imp. in lamps for burning coal-oil and similar fluids. (A com.)

Dated 30*th October*, 1861.

2726. E. De Bassano and A. Brudenne, Brussels—Imp. in the manufacture of stearine.

Dated 8*th November*, 1861.

2805. C. W. Siemens, 3, Great George-street, Westminster—A vessel, and gun or guns connected therewith, for use in naval warfare.

Dated 9*th November*, 1861.

2815. F. H. M. C. D. C. F. De Lacombe, Paris—Imp. in generating hydrogen gas for illuminating or other purposes, and in apparatus used therein.

Dated 11*th November*, 1861.

2827. D. Y. Stewart, Glasgow—Imp. in the manufacture of cast-iron pipes and in similar articles, and in apparatus to be used therein.
2832. A. Shannon, New York—An improved construction of cartridge for accelerating the flight of projectiles.

Dated 13*th November*, 1861.

2861. H. Bird, Liverpool—Imp. in the construction of bottles and other vessels, and in stoppers for the same to indicate that they contain poison.

Dated 16*th November*, 1861.

2885. E. D'Estanque, Mont-de-Marsan, France—An improved instrument for drawing teeth.

Dated 18*th November*, 1861.

2892. W. Cliff and E. Cliff, St. Quentin, France—Imp, in the manufacture of lace.
2897. A. C. M. Pouillet, Paris—An improved mode of constructing and fixing the rails of railways.

Dated 19*th November*, 1861.

2904. J. Lee, Church-gate, Leicester—Imp. in the construction of the wheels of traction engines, and in the mode of adaptation to such engines.
2906. S. Dédé, 13, Rue Duvivier, Paris—A new process of discolouring, purifying, and improving varnish, oil, resin, gum, ether, wines, spirits, and other matters through the application of compressed air.

Dated 21*st November*, 1861.

2921. T. Cowburn, Manchester—Imp. in apparatus for elevating boiling soap and for dividing the same into bars when congealed.
2924. G. H. Polyblank, 55, Gracechurch-street—A new or improved method of protecting and preserving photographic and other prints, water-colour drawings, and other works of art from injury and decay.
2925. J. Gittoes, jun., Westbromwich, and G. Hinton, Oldbury—Certain imp. in cupolas and furnaces for smelting or reducing ores and for the re-melting of pig iron.
2927. E. Brooks, Bradford—Imp. in machinery for combing wool and other fibrous substances.

Dated 22*nd November*, 1861.

2929. H. C. Meyer, Ashford-street, Hoxton—Imp. in the means of stopping or retarding railway and other carriages.
2931. A. F. Yarrow, Arundel-square, Barnsbury, and J. B. Hilditch, Barnsbury-villas—Imp. in locomotive steam carriages for common roads.
2937. C. Bartholomew, Broxholme, Wheatley, near Doncaster, and J. Heptinstall, Masbrough, Rotherham—Imp. in making circular blooms, such as are used in the manufacture of tyres and for other purposes.

Dated 23*rd November*, 1861.

2941. S. Sansum, Birmingham—An imp. or imps. in penholders.
2943. C. H. J. W. M. Liebmann, Huddersfield—Imp. in textile and felted fabrics.
2945. J. H. Johnson, 47, Lincoln's-inn-fields—Imp. in toothed wheels, and in the apparatus used in their manufacture. (A com.)
2947. J. Pitkin, Clerkenwell—Imp. in aneroid barometers.
2949. E. A. Rouvière, sen., 51, Rue de Malte, Paris—An improved pump.

Dated 25th November, 1861.

2957. W. Burgess, Newgate-street—Imp. in reaping and mowing machines.
2959. J. H. Johnson, 47, Lincoln's-inn-fields—Imp. in machinery or apparatus for preparing oval picture frames. (A com.)
2961. A. V. Newton, 66, Chancery-lane—An improved method of removing and preventing the formation of calcareous and saline deposits in steam boilers. (A com.)
2962. J. Halford, Beacon-cottage, Great Barr, near Birmingham—Imp. in collecting and utilizing smoke, gases, and such like products of combustion, rendering the same available for heating steam boilers and other purposes where heat is required, which imps. are also applicable to the desulphurization of coal in making coke.
2963. G. Clarke, 16, Gresham-place, Camberwell-lane—An improved fire-escape.
2964. P. Cowan, Barnes, Surrey—A mode of utilizing the waste heat of furnaces used in reburning animal charcoal.

Dated 26th November, 1861.

2965. A. W. Willis, 28, Great Russell-street, Bloomsbury—Imp. in the construction of pencil cases or holders.
2966. C. G. Braxton, Portsea—Imp. in apparatus for propelling and steering vessels.
2969. R. Harcourt, Birmingham—An imp. or imps. in fastening knobs to doors, drawers, and other articles, and in connecting knobs to spindles.
2971. C. Stevens, 31, Charing-cross—Imp. in penholders. (A com.)
2973. G. Bottomley, St. George's-place, Leeds—Improved machinery for cutting up linen, cotton, woollen, and other rags, fibrous waste, or vegetable substances, for various purposes in the industrial arts.
2975. W. Pirth and R. Ridley, Leeds—Imp. in apparatus and machinery for working coal and other mines.
2977. G. E. Donisthorpe, W. Firth, and R. Ridley, Leeds—Imp. in machinery and apparatus for working coal and other mines.
2978. G. L. Purchase, 23, Bedford-row—Improved sight apparatus and sight for firearms and ordnance.

Dated 27th November, 1861.

2979. J. Standfield, Stratford, Essex—Imp. in apparatus for regulating and indicating the speed of steam engines and other machinery.
2982. G. Rydill, Dewsbury—An improved Cornish or other steam boiler, with smoke consumer and condenser, being also applicable for ventilation.
2983. W. Leck, Glasgow—Imp. in weaving, printing, and otherwise treating certain ornamental fabrics.
2985. A. Whibley and T. Lumley, Gloucester-grove East, Old Brompton—Imp. in ventilators.
2987. A. Barclay, Kilmarnock—Imp. in machinery or apparatus for boring and winding purposes.
2989. A. V. Newton, 66, Chancery lane—Imp. in moving and reaping machinery. (A com.)
2991. W. Clark, 53, Chancery-lane—Imp. in the construction of parts of electric telegraph belt apparatus, and in apparatus used in making the same. (A com.)
2993. M. Ohren, Sydenham—An improvement in the manufacture of gas and the apparatus connected therewith.
2994. W. Rowan, Belfast—Imp. in machines for heckling and scutching flax and other vegetable fibres.

Dated 28th November, 1861.

2997. H. Wilde, Manchester—Imp. in magneto-electric telegraphs, and in apparatus connected therewith.
3001. S. A. Carpenter, Birmingham—An imp. or imp. in attaching name plates or labels to umbrellas, parasols, walking sticks, and whips.
3002. P. Spence, Fewton Heath, near Manchester—Imp. in the treatment of ores for the manufacture of sulphuric acid, and in apparatus connected therewith, which apparatus is also applicable to the treatment of ores for separating metals therefrom.
3003. F. F. Weiss, Strand—An improved fastening for boxes and cases.
3004. W. A. V. Konig, Brompton-row, Brompton-road, Brompton—Imp. applicable to stoves or open fire-places for utilizing more of the heat therefrom than heretofore, also for economizing fuel and igniting same.
3005. J. D. de Labaume, 9, Dorset-terrace, Clapham-road—Imp. in machinery for cooling and freezing water and other fluids. (A com.)
3006. B. Pitt, 3A, Great Carter-lane, and J. J. Shedlock, 1, Wendale-villas, Earl's-court, Kensington—Imp. in cocks or valves for the passage of fluids.

Dated 29th November, 1861.

3007. E. Funnell, 54, East-street, Brighton—A self-acting indicator signal for railways.
3009. T. Ellis, Swindon, Wiltshire—Certain imp. in rails for permanent ways.
3010. A. B. Childs, 481, New Oxford-street—Imp. in wringing machines. (A com.)
3011. S. Tonks and J. Brookes, West Bromwich—Imp. in steam boiler plates.
3012. R. C. Perry, Manchester—An improved infant's feeding bottles.
3014. R. A. Brooman, 166, Fleet-street—An improved safety buffer or apparatus to be used in railway trains to prevent accident from collisions. (A com.)
3015. E. Tyer, 15, Old Jewry-chambers—Imp. in electric telegraphs.

Dated 30th November, 1861.

3017. W. Cooke, 26, Spring-gardens, St. Martin's-in-the-fields—A wind guard for curing smoky chimneys.
3020. E. Price, Cheapside—Imp. in collars for gentlemen's, ladies', and children's wear.

Dated 2nd December, 1861.

3021. A. Schultz, Paris—Imp. in the manufacture of certain colours for printing and dyeing fabrics.
3022. J. Wakenell, Hitchin, Hertfordshire—Imp. in the construction of invalid bedsteads, convertible into other articles of furniture for the use of invalids.
3024. G. Ralston, Tokenhouse-yard—Imp. in the mode of preparing and applying a certain material on the hulls of iron or wooden ships, or on the surfaces of materials for building the same, also for preventing oxidation and tubercles in iron water pipes. (A com.)

Dated 3rd December, 1861.

3028. J. H. Glew, Howland-street, Fitzroy-square—Imp. in machinery or apparatus for sewing or stitching.
3030. J. Leach, 19, Bronte-place, East-street, Walworth—Imp. in preparing matters to be used in the manufacture of candles.
3032. J. L. Field. Upper Marsh, Lambeth—Imp. in the manufacture of mould candles.
3034. W. E. Newton, 66, Chancery-lane—Imp. in artificial teeth (A com.)

Dated 4th December, 1861.

3036. J. Hemingway, Robert Town, Yorkshire—Imp. in the manufacture and ornamentation of textile fabrics.
3038. C. Crabtree, Bingley, Yorkshire—Imp. in paper tubes, and in the means or machinery for making or manufacturing the same.
3040. H. G. Hacker, Woodford-bridge, Essex—Imp. in machinery for the manufacture of chenille and other circular pile fabrics.
3044. R. A. Brooman, 166, Fleet-street—Imp. in albums or books for containing and showing photographic and other pictures, and in slides for the same. (A com.)
3046. C. S. H. Hartog, Norfolk-street, Strand—Imp. in the preparation and treatmeut of vegetable fibres, the better to adapt them for combining, working up, and dyeing with different fibres, such as silk, wool, cotton, and others, and in apparatus used in such treatment or preparation.

Invention with Complete Specification Filed.

3078. C. F. Varley, 4, Fortess-terrace, Kentish-town—Imp. in electric telegraphs.—9th December, 1861.

Patents Sealed.

[*From Gazette, December 13th*, 1861.]

December 13th.

1352. J. Ronald.
1539. F. Potts.
1543. T. Gray.
1545. D. B. White.
1548. T. Routledge.
1551. J. Perry.
1556. F. Ziffer.
1557. R. Walker.
1563. J. Dunn.
1568. T. Webb and J. Cragg.
1571. T. T. Jopling.
1588. C. Stevens.
1606. J. Church.
1624. C. Stevens.
1628. J. Fowler, jun.
1639. A. Lion.

[*From Gazette, December 17th*, 1861.]

December 17th.

1555. J. Miller.
1583. L. Hannart.
1587. H. Lawford.
1589. W. E. Gedge.
1590. A. N. Lesueur.
1591. R. A. Brooman.
1592. C. Hodgson.
1593. C. Hodgson.
1599. T. R. Harding.
1600. W. F. Henson.
1601. W. Hobson.
1602. W. Hobson.
1608. J. Comrie.
1609. R. Ormerod.
1611. J. S. McArdle.
1614. R. Moore.
1619. J. Lafon.
1625. C. Stevens.
1657. M. Lane.
1670. W. Dingwall.
1873. J. F. Bourne.
2099. R. Telford and J. Sanders.
2204. J. K. Bayley, T. Harrison, W. Briggs, & R. Parker.
2385. J. Cottrill.
2654. J. H. Johnson.

Patents on which the Stamp Duty of £50 has been Paid.

[*From Gazette, December 13th*, 1861.]

December 10th.

2837. C. Hodgson.

December 11th.

2849. A. Rollason.
2975. W. Taylor and W. D. Grimshaw.

[*From Gazette, December 17th*, 1861.]

December 13th.

2864. R. A. Brooman.
2867. J. Pendlebury.
2874. C. F. Vasserot.

December 14th.

2873. J. Bullough.
2876. J. Wardill.
2884. J. H. Selwyn.
2921. R. Mushet.